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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,436	05/09/2001	Avneesh Agrawal	010198	4990

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QUALCOMM Incorporated  
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EXAMINER

SHAH, CHIRAG G

ART UNIT

PAPER NUMBER

2664

DATE MAILED: 02/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/852,436

Applicant(s)

AGRAWAL ET AL.

Examiner

Chirag G Shah

Art Unit

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-29 is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) Z.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 5-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal (WO 00/59123) in view of Guey (U.S. Patent Pub No. 2002/0106008).

Referring to claims 1, 2, 5-12, 17 and 24, Agrawal discloses in figures 1-4 and pages 11 and 12 and respective portions of the specification of a receiver (rake receiver is as applicant disclosed typically made up of one or more searchers for locating direct and multipath pilots from neighboring base stations, and two or more fingers for receiving and combining information signals from those base stations.) comprising a shift register (N-bit) for receiving and shifting in I and Q samples, wherein a plurality of the I and Q samples are accessible in parallel fashion, a parallel sum calculator for receiving the plurality of I and Q samples and producing an I and Q result and a type of scheduler where an I and Q data stream in digital form are sampled at eight times a chip rate, for controlling the shift register and the parallel sum calculator such that they are (time-shared-shown in figure 4) to produce results in sequence for each of a plurality of channels. Agrawal also teaches in claims 1-8 and respective portions of the specification of a PN generator wherein I and Q PN sequences are produced and a despreader for receiving set of I data and sets of Q data for producing sets of despread I values and producing

Art Unit: 2664

sets of despread Q values; a summer for summing sets of despread I and Q values to produce I and Q sums respectively; and an accumulator for receiving I sums and Q sums and accumulating them in sets respectively and an energy calculator for outputting the accumulated I and Q results on channel symbol boundaries corresponding to a spreading factor associated with the channel, the accessing, parallel sum, accumulation, and conditional outputting being performed once per round for each of a plurality of channels. It is apparent from the figure that an active channel value for indicating which of the plurality of channels corresponds to the output of the parallel sum calculator and an index address for accessing the shift register is present in accordance with the active channel. On page 12, Agrawal also discloses of a I and Q rotators for receiving outputs, by means of rotating the plurality of despread results with the plurality of phase values to produce a plurality of rotated I and Q results and generating a plurality of covering sequences values each cycle. Agrawal fails to teach that an access terminal, access point, a CDMA2000, an HDR, and W-CDMA systems includes a receiver for processing a plurality of channels as disclosed. Guey discloses a receiver architecture for transmit diversity in CDMA system. Guey teaches in sections [0015], [0016], and [0058] that architecture of CDMA receiver allows for utilizing various systems to implement processing of a large number of channels delivered at high chip rate in a high throughput, thus TIA/EIA have set for standards for using CDMA2000, HDR, WCDMA, IS-95, and IS-2000. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Agrawal to include the teachings of Guey in order to be able provide choice of utilizing a system according to design requirement.

Referring to claims 13-16, 18-22, 23, 25, and 26, Agrawal discloses in figures 1-4 and pages 11 and 12 and respective portions of the specification of a receiver (rake receiver is as

Art Unit: 2664

applicant disclosed typically made up of one or more searchers for locating direct and multipath pilots from neighboring base stations, and two or more fingers for receiving and combining information signals from those base stations.) comprising a shift register (N-bit) for receiving and shifting in I and Q samples, wherein a plurality of the I and Q samples are accessible in parallel fashion, a parallel sum calculator for receiving the plurality of I and Q samples and producing an I and Q result and a type of scheduler where an I and Q data stream in digital form are sampled at eight times a chip rate, for controlling the shift register and the parallel sum calculator such that they are (time-shared-shown in figure 4) to produce results in sequence for each of a plurality of channels. Agrawal also teaches in claims 1-8 and respective portions of the specification of a PN generator wherein I and Q PN sequences are produced and a despreader for receiving set of I data and sets of Q data for producing sets of despread I values and producing sets of despread Q values; a summer for summing sets of despread I and Q values to produce I and Q sums respectively; and an accumulator for receiving I sums and Q sums and accumulating them in sets respectively and an energy calculator for outputting the accumulated I and Q results on channel symbol boundaries corresponding to a spreading factor associated with the channel, the accessing, parallel sum, accumulation, and conditional outputting being performed once per round for each of a plurality of channels. Thus an accumulator, accumulates the I and Q result in a partial accumulation for each active channel and conditionally outputs the partial accumulation on symbol boundaries in accordance with the spreading factor associate with the active channel under the control of the scheduler as claim. It is apparent from the figure that an active channel value for indicating which of the plurality of channels corresponds to the output of the parallel sum calculator and an index address for accessing the shift register is present in accordance with

Art Unit: 2664

the active channel. On page 12, Agrawal also discloses of a I and Q rotators for receiving outputs, by means of rotating the plurality of despread results with the plurality of phase values to produce a plurality of rotated I and Q results and generating a plurality of covering sequences values each cycle as claims.

3. Claims 3 and 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal in view of Guey as applied to claims 1, 2, and 5-26 above, and further in view of Kuo (U.S. Patent No. 6,507,604).

Referring to claims 3 and 4, Agrawal in view of Guey discloses all the limitations set forth by the independent claim 1 as disclosed before. Agrawal in view of Guey teaches of a filter searcher. Agrawal in view of Guey fails to teach that the receiver further comprises a digital signal processor for configuring each of the plurality of channels and receiving their corresponding outputs. Agrawal in view of Guey fails to teach that the searcher provides the digital signal processor configuration of each of the plurality of channels there within. Kuo discloses an apparatus for performance improvement of a digital wireless receiver having a plurality of signals. Kuo teaches in claim 12 and respective portions of the specification that functions to process configurations of each of the plurality of channels and signals. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teaching of Agrawal in view of Guey to include the teaching of a digital signal processor as taught by Kuo in order to maximize efficient spectrum channel utilization by being able to configure plurality of channels.

***Allowable Subject Matter***

4. Claims 27-29 allowed.

***Conclusion***

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**Or faxed to:**

(703) 305-3988, (for formal communications intended for entry)

**Or:**

(703) 305-3988 (for informal or draft communications, please label "Proposed" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G Shah whose telephone number is 703-305-5639. The examiner can normally be reached on M-F 7:30 to 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 301-305-4366. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Application/Control Number: 09/852,436

Page 7

Art Unit: 2664

cgs

February 7, 2003

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